

COMPONENTS

FAQ

Q Do I need a graphics card that supports DirectX 10 to play the latest games?

A DirectX 10 isn't available for Windows XP, so to take advantage of a graphics card that supports it, you need to be running Windows Vista. Some new games include DirectX 10 effects, but most of them can be recreated with DirectX 9.0c. This means you don't need a DirectX 10 graphics card or Vista to enjoy stunning-looking games such as Crysis.

However, there's no reason to avoid DirectX 10 graphics cards, even if you don't have Vista. Cards such as the two reviewed here are both excellent value and are great upgrades from a DirectX 9 card. What's more, if you upgrade to Vista later, you will already have the requisite hardware in place for DirectX 10 effects.

Jim Martin

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SAPPHIRE HD 3850

★★★★★

£98 inc VAT

From www.lambda-tek.com/components



It's not only Nvidia that's releasing a new graphics card this month – ATI is also getting in on the act. With ATI's HD 2900XT falling behind Nvidia's 8800GTX, ATI needs a winner to avoid losing the mainstream battle. Nvidia's GeForce 8800GT (see review opposite) isn't quite mainstream. At £174 including VAT, it's still relatively expensive. It's fast, but is it worth almost £80 more than Sapphire's new HD 3850?

There are striking similarities between the two cards reviewed this month. They occupy only one slot inside your PC and have fans that are virtually silent. They both have two dual-link DVI outputs and are able to output analogue video to high-definition TVs.

Despite being considerably cheaper, Sapphire's HD 3850 upstages Gigabyte's 8800GT by using a 55nm manufacturing process. Here, smaller is better as it means the graphics processor produces less heat and requires less power, around half the power of a Radeon HD 2900XT. As the graphics processing unit (GPU) is physically smaller it's cheaper to produce, which is one reason (along with the modest 256MB of GDDR3 RAM) the HD 3850 costs less than £100.

It's a sterling performer, too. Its core clock speed of 669MHz is seriously quick and the lack of RAM won't be an issue at resolutions of 1,680x1,050 or lower. We've been recommending the Radeon-based Sapphire X1950 Pro as the best budget graphics card (see 'Also consider...' below), but the HD 3850 is much quicker in some of our game tests. In Call of Duty 2, it managed 39.8fps (similar to the X1950 Pro) but in Prey it was faster, producing 67fps against the Pro's 45.5fps. 3DMark 06 also proved no problem



for the HD 3850. It achieved an excellent 7,203 3DMarks, almost doubling the X1950's 3,904.

The top edge of the card has two CrossFire connectors. The HD 3850 uses the new PCI Express 2 standard, which allows you to install four cards on a compatible CrossFire X motherboard. This isn't much of an advantage when you consider the cost of four cards and a compatible motherboard, though. You can still opt for a dual-card setup using any motherboard with an Intel P965 or 975X chipset.

Sapphire claims that the HD 3850's support for DirectX 10.1, which will be available shortly to Vista users as an update, is a real advantage. In reality, it's a questionable benefit, since several games developers

have said they have no plans to start making games that use any of the new features. More useful is the HDCP-compliant DVI output and the ability to decode Blu-ray or HD DVD H.264/VC-1 video, like the 8800GT. We ran the same Blu-ray movie test as for the 8800GT, and the HD 3850 delivered smooth playback when paired with our test PC's Core 2 Quad processor and 2GB of RAM.

The HD 3850 is great value. Performance is a mixed bag; it's blisteringly fast in some games, merely good in others. Still, if you also plan to use it to help decode HD videos, it's a fine choice.

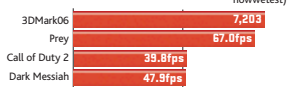
Jim Martin

SUMMARY

- ✓ Affordable
- ✓ Good performance
- ✓ Decodes HD video

PCI EXPRESS GRAPHICS CARD ATI
Radeon HD 3850, PCI-E 16x interface, 256MB GDDR 3 memory running at 829MHz (1.67GHz effective), 669MHz core speed, 2x DVI, TV-out
PART CODE 21121-00-50R
DETAILS www.sapphiretech.co.uk

PERFORMANCE (see www.computershopper.co.uk/howwetest)



Also consider...

INTEL Core 2 Duo E6750

★★★★★

£115 inc VAT

From www.redstore.com

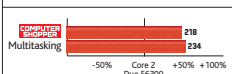


Intel's latest Core 2 Duo processor has a faster FSB speed of 1,333MHz, so there's more bandwidth available to talk to system components, although you need a motherboard that supports this speed. It's incredibly quick, but also great value.

If you're looking to build a new PC and want a lightning-fast processor, this is the one to buy.



PROCESSOR Two cores running at 2.66GHz, LGA775, 333MHz external bus (1,333MHz quad-pumped FSB), 4MB L2 cache
PART CODE BX80557E6750
DETAILS www.intel.com
FULL REVIEW Oct 2007



SAPPHIRE X1950 Pro

★★★★★

£77 inc VAT

From www.lambda-tek.com/components



The X1950 Pro is an excellent card. It blasted through all our games

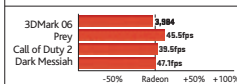
tests at high detail and resolution settings. It doesn't support DirectX 10, but there probably won't be many games that require this over the next year. This card is also available as an AGP version for about the same price.

If you're on a budget, this is the card to buy.

PRICE CUT!



GRAPHICS CARD ATI Radeon X1950 Pro chipset, PCI-E x16 interface, 570MHz core speed, 36 pixel pipelines, 256MB GDDR3 memory running at 700MHz (1.4GHz effective)
PART CODE 11095-01-20R
DETAILS www.sapphiretech.com
FULL REVIEW Oct 2007



GIGABYTE GeForce 8800GT

★★★★★

£174 inc VAT
From www.kikatek.com



The 8800 series of graphics cards was launched almost a year ago, but Nvidia has only just released the mid-range version, the 8800GT. It has been worth the wait, though. This Gigabyte card is a stunning performer for the price.

Performance falls between the 8800GTX and 8800GTS, but it costs less than both, making it a real bargain. Using the latest beta drivers, the card managed 69.8fps in Call of Duty 2 at 1,280x1,024. This left enough headroom to push the resolution to 1,600x1,200, and we still saw 58.2fps. It was a similar story with Prey, where we saw 66.9fps at 1,600x1,200. The score of 9,086 3DMarks even beats the 8,702 3DMarks of the ECS GeForce 8800GTX, which we reviewed in *What's New, Shopper* 233. The GTX's score was with older drivers, but it makes the 8800GT look even more impressive.

Part of the reason the 8800GT is so fast is down to the fact that it's produced using a 65nm process, rather than the GTS and GTX, which use a 90nm process. This means that the GPU runs cooler and can therefore run faster. Its core clock speed of 600MHz is higher than the GTX's 575MHz. The shader clock is faster, too, at 1.5GHz compared to the GTX's 1.35GHz. There's 512MB RAM running at the same 900MHz (1.8GHz effective) as the GTX. Furthermore, there are 112 stream processors, just 16 fewer than the GTX.

Add all these figures together and it soon becomes



clear that there's no reason to consider an 8800GTS any more, especially when the 8800GT takes up only a single slot inside your PC, and the cooling fan is all but silent.

You still get two dual-link DVI outputs and a TV output for component, S-video or composite video. Even more good news is that the 8800GT is able to decode H.264 video, a feature that is missing from the 8800GTX and GTS. We tried playing *Casino Royale* on Blu-ray using the latest version of PowerDVD and our test rig's Core 2 QX6700 processor and 2GB RAM. It ran perfectly and there were no dropped frames.

At the back of the card, just one PCI-E power connector is needed and our card drew 105W, well within the 150W limit. As you would expect, there's an SLI connector, which means you could add a second or third card in future. In the box, you get a DVI-to-D-sub adaptor and a breakout box with component video outputs.

For this price, nothing comes close to matching the 8800GT's performance. The single-slot design, H.264 decoding and quiet fan are just three other reasons to buy it now.

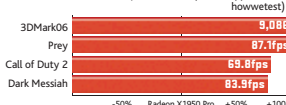
Jim Martin

SUMMARY

- ✓ Excellent performance
- ✓ Quiet, single-slot design
- ✓ DirectX 10 support

PCI EXPRESS GRAPHICS CARD Nvidia GeForce 8800GT, PCI-E 16x interface, 512MB GDDR 3 memory running at 900MHz (1.8GHz effective), 600MHz core speed, 2x DVI, TV-out
PART CODE GV-NX88T512H-B
DETAILS www.giga-byte.co.uk

PERFORMANCE (see www.computershopper.co.uk/howwetest/)



COOLER MASTER Hyper TX 2

★★★★★

£10 inc VAT
From www.yoyotech.co.uk



If you need a cooler that will work with Intel or AMD processors, you won't find a better bargain than the Hyper TX 2. This processor cooler has three copper heatpipes and a 92mm fan, thus ensuring that your processor is kept cool without making a racket. Furthermore, the Hyper TX 2 runs at 22dBA or less, which is virtually silent.



PROCESSOR COOLER Supports Intel LGA775, AMD Socket AM2 + 939 processors, 92mm fan, 1,700-2,000rpm spin speed, 22dBA max operating volume
PART CODE RR-CCH-L9U1-GP
DETAILS www.coolermaster.co.uk
FULL REVIEW Feb 2008

AOPEN MP965-DR

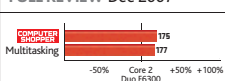
★★★★★

£297 inc VAT
From www.pciexpressshop.co.uk

Aopen's latest mini-PC is around the same size as a Mac mini but is even more stylish. It's a barebones case, but comes with a slimline DVD writer, so you only need to add a laptop-style processor, RAM and hard disk. You get a Media Center remote control in the box and there's a DVI-to-HDMI adaptor so you can connect the PC to a high-definition TV.



BAREBONES PC Intel 965GM chipset, supports Socket P processors, 4x USB2, FireWire and Gigabit Ethernet ports, DVI and TV outputs, Intel GMA 3100 graphics.
DETAILS www.aopen.nl
FULL REVIEW Dec 2007



CHOOSING A... Processor

Follow the steps to find your ideal specs

MANUFACTURER: Intel
PROCESSOR: Pentium Dual Core E2140
SOCKET: LGA775
Recommended minimum in grey

1 A processor with the minimum specifications above costs around £45. It's reasonably fast, but is best suited to standard office applications. As it uses the established LGA775 interface you may not need a new motherboard to match, but check whether your particular board supports a dual-core Pentium.

2 If you're upgrading only your processor, you'll be limited by your motherboard's socket type. AMD Socket 754 boards provide the least choice; an Athlon 64 3400+ is the fastest compatible processor. Socket 939 motherboards provide more options, including dual-core X2 processors going up to the fast FX-60. Socket AM2 is the latest standard and supports AMD's full range.

Intel's LGA775 socket has been around for a few years, but check your motherboard's manual for processor support as only the latest chipsets support Intel's Core 2 Duo and Core 2 Quad processors.

3 If you're building a PC from scratch, it's best to pick the processor first and choose a motherboard to match. If you're building a basic office PC, a budget dual-core processor is fine. If you do a lot of intensive tasks, an Intel Core 2 Duo or Quad is a better choice.

The Core 2 Duo range is our current favourite. The good news is that a recent price drop means you can buy the very quick E6750 (see 'Also consider...', left) for just £115. If your motherboard doesn't support Core 2 Duo, it's worth upgrading as the Pentium D range of dual-core processors is no longer available. Avoid single-core Pentium 4s and Athlon 64s as they aren't good value.

4 Want to overclock? Intel's Extreme processors and AMD's FX processors are multiplier-unlocked, so you can adjust their speeds without affecting your memory or other components. However, the Core 2 Extreme X6800 costs around £650.

5 You can buy Intel's mobile Core 2 Duo and Core Duo processors, too. However, you'll need a motherboard or barebones PC that's compatible with Socket 479. Mobile processors are more expensive, so buy one only if you need to.